



BUILDING ENERGY CODES PROGRAM

Setting the Standard

U.S. Department of Energy • Office of Energy Efficiency and Renewable Energy

September 2009

Challenging the Status Code

In June, the U.S. Department of Energy (DOE) submitted 24 residential code change proposals to the International Code Council® (ICC). These 24 proposals, developed in part through a collaboration among DOE and several members of the energy codes community, offer more than one way to achieve a 2012 International Energy Conservation Code® (IECC) that is at least 30% more stringent than the 2006 version. This collective effort will help the ICC hearings in October boast one of the most impressive suites of energy-conscious code change proposals in the history of the IECC. For more information about DOE's submitted proposals, see www.energycodes.gov/codedevelop/icc_0910_cycle.stm.

Adapting to the new ICC process

As part of the ICC's recently revised code development process, only one round of code change proposals will be considered during the entire three-year cycle. They will be considered at hearings scheduled to begin in late October.



To efficiently tackle the 30% goal within the constraints of the streamlined process, DOE invited collaborators from a broad spectrum of codes experts and affected parties to provide input to DOE and to promote coordination among their respective processes of developing code change proposals. "It is great to see coordination and cooperation among the advocacy groups that DOE convened, and exciting to see interest in the process," remarked David Karmol, Vice President, Federal and External Relations for the ICC.

When asked how the new process was being received, Karmol indicated that it appears to be going well so far. "There is criticism every time you make a change, but it was financial considerations, as well as the growing volume of code change proposals, that drove the decision and forced the ICC to streamline the process." The number of participants and code changes involved in each cycle necessitated a more efficient process, one that the ICC will watch closely and make adjustments to as needed going forward.

During his presentation to attendees of *Energy Codes 2009*, Karmol emphasized the inclusive nature of the ICC process, indicating the desire of the ICC to "serve as the forum where good codes are developed." To achieve this, at least one-third of all ICC code development committees are composed of regulators, meetings are held in a public forum welcoming all interested parties, and all actions and reasoning for actions are published.

It takes a village

On the road to energy codes development, adoption, implementation, and enforcement, energy codes community members wear various hats and play differing roles. But for these differences, community members do share one very important goal: making the nation's buildings more efficient.

David Karmol sees his particular role as that of an educator of sorts. While he spends much of his time interfacing with political leaders—working codes-related issues with agencies, Congress, and sometimes state and local officials—he also maintains a strong focus on educating ICC members and stakeholders about the process of promulgating codes.

"At the end of the day, the IECC is just a book. States adopt it at different rates and interpret it differently," said Karmol. "The codes world is moving very quickly right now, which makes it tough because people have to make decisions without fully understanding all of the details involved." This necessarily includes understanding how a building code becomes a building code, how a model code becomes a state code, and how implemented codes translate into energy savings, he added.

Don't Miss These ICC Events

The International Code Council's® 2009 Code Development Hearings will be held October 24-31, and the 2009 Annual Conference will be held November 1-4. Both events will be at the Baltimore Convention Center. Energy code change proposals will be considered at the International Energy Conservation Code® hearings on Thursday, October 28 through Saturday, October 31.

For more information about the conference and hearings, including the schedule, visit: www.eshow2000.com/iccbwi/splash.html.

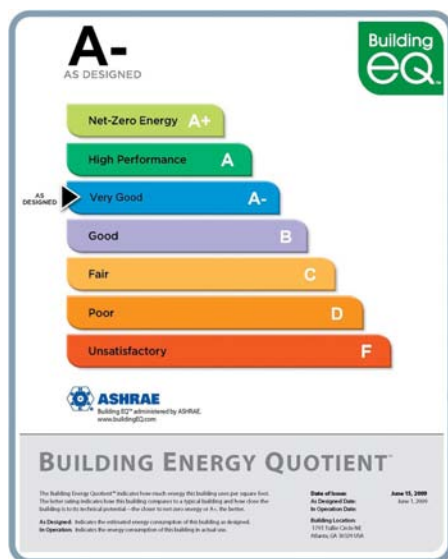


Raising the Standard of Energy Efficiency

As ASHRAE¹ and the U.S. Department of Energy (DOE) make the final push toward their shared goal of increasing the energy efficiency of ANSI/ASHRAE/IESNA² Standard 90.1-2010 by 30% over Standard 90.1-2004, ASHRAE continues to underscore the importance of measuring and demonstrating progress. With the recent development of a new advanced energy labeling system for commercial buildings and continued proliferation of its Advanced Energy Design Guides, codes community professionals can be better armed than ever to make big strides in energy efficiency.

Check your Building EQ™

In an effort to rate new and existing buildings in an objective, technically rigorous way, ASHRAE has developed a new building energy labeling program, the Building Energy Quotient (bEQ) Program. Now in its pilot phase, bEQ intends to answer the difficult, but crucial, question: *How can we reduce the amount of energy buildings use by 30% if we can't determine how much energy a building actually uses to begin with?*



A building's EQ rating is based on information including indoor air quality, use patterns, and energy usage. That bEQ rating is graded on a color-coded letter scale ranging from A+ to F, with many existing buildings expected to score in the C to D range. Each building's label provides for two components: an asset rating representing its designed efficiency, and an operational rating based on actual measured performance. Label image reproduced with ASHRAE permission.

The prototype label for bEQ is modeled after the United Kingdom's Display Energy Certificate, and provides building owners, existing and potential owners and tenants, building operations and maintenance (O&M) staff, and the public with information about the building's potential, as well as actual, energy performance.

"If we don't start doing something now, the end as we know it—when energy resources get prohibitively expensive—will come more quickly."

Ron Jarnagin, ASHRAE

This energy "report card" is useful for a variety of reasons.

- ▶ Building owners and operators can compare their building to others to establish a measure of their potential for energy performance improvement.
- ▶ The information could differentiate a building from others in negotiations to secure potential buyers or tenants.
- ▶ Potential buyers or tenants can gain insights into the value and potential long-term cost of the building.
- ▶ O&M staff can use the information to inform their decisions about maintenance activities and influence building owners and managers by demonstrating the potential return on investment for energy efficiency projects.

Regarding ASHRAE's decision to start developing bEQ last year, Ron Jarnagin, chair of the ASHRAE committee developing the label, says, "If we don't start doing something now, the end as we know it—when energy resources get prohibitively expensive—will come more quickly." To help address the problem, he added, the public needs information to help them understand what constitutes an efficient versus inefficient building. "The intent is for Building EQ to openly provide that needed basis of understanding and comparison."

ASHRAE is planning a widespread launch of the Building EQ Program in 2010. For more information, visit www.buildingeq.com.

Walking down the 30% path? Use a guide.

Nearly 200,000 Advanced Energy Design Guides (AEDGs) are currently in circulation, offering potential savings of 9 million tons of carbon dioxide or \$600 million in energy costs.³ They are available for free download at <http://www.ashrae.org/publications/page/1604>. For more about ASHRAE's AEDGs, read the full article at http://www.energycodes.gov/news/raising_ee_standard.stm.



Standards activity – addenda recap

SSPC 90.1 held an interim meeting October 1-3, 2009 at ASHRAE headquarters in Atlanta, GA. Updates on this meeting will be provided in the next edition of Building Energy Codes Program's *Setting the Standard*. For more information about some of the addenda currently in public review or recently approved, see the July 2009 edition at www.energycodes.gov/news/sts/pdfs/standard_july09.pdf.

¹ American Society of Heating, Refrigerating and Air-Conditioning Engineers

² The American National Standards Institute/ASHRAE/Illuminating Engineering Society of North America

³ ASHRAE estimate



Eric Makela (right) was presented the Award by Acting EERE Building Technologies manager, Scott E. Hine, on July 27, 2009 at *Energy Codes 2009* in Portland, Oregon.

2009 Jeffrey A. Johnson Award winner, Eric Makela

Congratulations to Eric Makela of the Britt/Makela Group, Inc.!

Eric received the fourth annual Jeffrey A. Johnson Award for Excellence in the Advancement of Building Energy Codes and Performance. As a recipient of the Award, Eric is recognized by the U.S. Department of Energy as a leader in the nation for sustained service of the highest caliber in the pursuit of energy efficiency goals.

Eric has contributed to the energy codes community for more than 20 years, as an employee of government and industry, and most recently joining his wife, Michelle Britt, to form Britt/Makela Group, Inc. (BMG). Eric's career move afforded him greater flexibility in his work and the opportunity to foster close working relationships with his clients. The success of their business strategy is demonstrated by BMG's advertising, or rather, lack thereof – BMG prospers simply by word of mouth.

BMG's client services run the energy codes gamut, and one aspect of Eric's valued contributions was summarized by an Award nominator, "The benefit to the nation from Eric's years of participation on code change committees cannot be overstated." Eric collaborates on such code changes with regional and industry groups as well as colleagues in Washington D.C., and he does lots of training. While Eric acknowledges that all aspects of energy codes training is important, he focuses on enforcement. "If we can get plan review and inspection staff to understand energy codes, we can save energy," Eric says.

In the last two years, Eric has conducted education and training sessions for more than 1,200 builders, designers, code officials, and other energy codes community members. Since 1986 he has trained or presented on energy codes in more than 22 states. Eric holds a Master's degree in education and a Bachelor's in environmental

studies. In his words, "I earned an energy management certificate, found my passion, and stayed with it." And his passion shows. Eric's penchant for training was praised by one Award nominator who called Eric "an innovator of education who practices to address diverse audiences and bring them together."

With all of this training, Eric sees the biggest roadblock to energy efficiency as attitude. Eric says that it can be hard for the importance of energy efficiency to sink in. The umbrella of energy codes has opened very wide, encompassing national security and safety. Building efficiency is directly tied to reducing America's dependence on foreign oil, and every year Americans who can't afford to condition their homes die from heat or cold exposure.

"The benefit to the nation from Eric's years of participation on code change committees cannot be overstated."

Award Nominator



"I earned an energy management certificate, found my passion, and stayed with it."
Eric Makela.

What's Eric's training tip to homeowners? Insulate and seal your home! Specific recommendations for energy efficiency depend on the building. Eric recommends asking a HERS rater to do an evaluation and make the lowest cost fixes that result in the greatest energy impact.

Learn more about Eric and the Jeffrey A. Johnson Award via the 2009 winner announcement at http://www.energycodes.gov/jaj/jajohnson_winner_09.stm.



Email questions about residential and commercial energy codes to BECP Technical Support at techsupport@becp.pnl.gov, or submit an inquiry at www.energycodes.gov/support/helpdesk.php.

Ask an Expert

Every month, the Building Energy Codes Program's (BECP) Technical Support team responds to hundreds of code-compliance inquiries from builders, architects, engineers, and code officials from around the country. Every issue of *Setting the Standard* offers frequently asked questions from the codes community and answers from BECP's codes experts.

Q Is there a document that identifies the percentage of energy efficiency savings accomplished by meeting each successive energy code when compared to the previous version? For example, for commercial buildings, it would be 90.1-1999 compared to 90.1-2004, and then compared to 90.1-2007. Or for residential, is there any data comparing energy efficiency savings from the 2000 International Energy Conservation Code® (IECC) to subsequent revisions?

A The Department of Energy is required to develop comparisons of versions of Standard 90.1 for commercial buildings by the Energy Policy Act of 1992. These comparisons are formally called determinations and are available at http://www.energycodes.gov/implement/determinations_com.stm.

DOE is also required to do comparisons of the IECC for residential buildings by the same act. These comparisons are available at http://www.energycodes.gov/implement/determinations_res.stm.

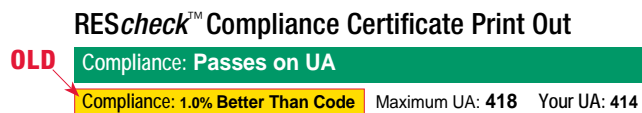
Even though IECC covers residential and commercial, DOE develops determinations on 90.1, not IECC.

DOE has done comparisons of all existing state codes to Standard 90.1-2007 in preparation for state adoption of Standard 90.1-2007 as required for certain funding under the American Recovery and Reinvestment Act of 2009. These comparisons are currently in draft form and under review by state representatives. These will be publicly available on www.energycodes.gov in early October.

DOE has done a number of state specific comparisons that are publicly available at http://www.energycodes.gov/implement/tech_assist_reports.stm.

Q Why in the latest version of REScheck™ (4.3.0) has the compliance percentage been removed from the compliance report?

A The justification for showing a numeric compliance percent in the software is to give the user (designer/builder/architect/etc.) a visual numeric indicator of proximity to “passing/failing” compliance as they populate the software with project-specific data. The alternative of a visual non-numeric indicator was simply inadequate for showing the proximity to passing/failing when approaching the pass/fail threshold (i.e., values near 0). This metric was removed from the compliance report because it is not information a code official needs for determining pass/fail status specific to the selected energy code. The “Compliance: Passes” or “Compliance: Fails” output in the report was deemed sufficient for this purpose. Also, removing the percent of compliance from the report helps prevent misuse of the compliance percent as an energy performance or “above code” metric when that is not its intended purpose.



Q Are there any exemptions that can be applied to a residential renovation?

A Yes. The 2009 IECC allows exemptions for the following categories as long as the energy use of the building is not increased.

1. Storm windows installed over existing sash and frame
2. Glass-only replacement in existing sash and frame
3. Existing building cavities that are exposed during construction and cavities that are filled with insulation (ceilings, walls, and floors)
4. Construction of which the building cavities are not exposed (roofs, walls, and floors)
5. Re-roofing where neither the insulation nor the sheathing are exposed

Highlights: *Energy Codes 2009*

Energy Codes 2009 was held in Portland, Oregon, July 27-30, 2009. Each year, the U.S. Department of Energy's (DOE) Building Energy Codes Program (BECP) plans and conducts the one-of-a-kind event designed specifically for the energy codes community.

Assembling the codes community

Energy Codes 2009 drew 226 attendees from 38 states and territories, and several foreign countries, to a single locale for over three days of education and networking opportunities. Participants included architects, builders, code officials, and energy code advocates as well as representatives from industry, trade associations, and model code organizations. "I was finally able to meet folks face-to-face that for the longest time I only met via emails or by telephone," noted one attendee.

Another liked the more informal nature of the cracker barrel event, which involved smaller, informal groups and targeted discussions. "[The cracker barrel] was good because it was a more personal meeting, and we got to interact and exchange ideas with our counterparts."

"The [*Energy Codes 2009*] sessions did exactly what they were intended to do, in a very comprehensive and interesting way."

Energy Codes 2009 attendee

Training and education for all

This year's presenters covered the gamut of codes- and standards-related topics, including:

- Progress on DOE's 30% efforts
- The challenges of code enforcement
- Impacts of the Recovery Act on energy codes.

Building tours galore

Participants were treated to tours at three different locations where energy-efficient and green features were incorporated. This year's tours included:

- Fleetwood Homes of Oregon's manufacturing facility, where the company assembles energy-efficient manufactured homes in a controlled environment
- Daybreak Cohousing, a residential community in which occupants live in small apartment-style units, and share a common house complete with commercial kitchen, communal dining room, and office and family areas with other residents
- First and Main office building, an 18-story high-rise in downtown Portland, overlooking the Willamette River.

BECP staff would like to extend a special thank you to the many tour leads, hosts, and organizers who made the building tours possible—and to the attendees for braving the record-breaking, triple-digit Portland heat wave to participate!

Thinking ahead to 2010

Do you have ideas for *Energy Codes 2010*? Let your voice be heard by sending an email to BECP Technical Support at techsupport@becp.pnl.gov. BECP staff will post additional details about *Energy Codes 2010* on www.energycodes.gov as planning gets underway.



Keynote speaker Mark LaLiberte shared his passion for uniting the industry to build durable, energy-efficient, healthy, and sustainable homes.



The cracker barrel facilitated small, focused discussions covering a variety of topics.



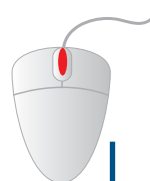
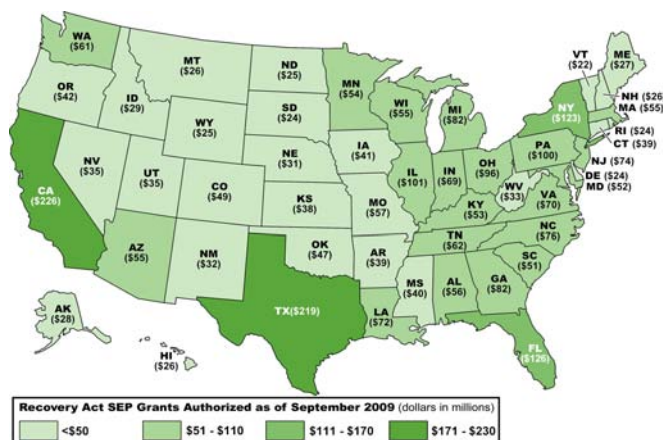
Building tour participants visited the Daybreak Cohousing community, which offers numerous green features and a unique approach to urban living.



The First & Main building, part of the *Energy Codes 2009* building tours, is expected to receive a LEED Platinum rating, even with all of those windows!

Recovery Act: Show me the money

The Building Energy Codes Program (BECP) team is often asked: *Where is the energy codes-related stimulus money actually going?* The map below reflects the most current State Energy Program grant authorizations per www.energy.gov/recovery. For information about Energy Efficiency Conservation Block Grants awarded thus far, visit www.eecbg.energy.gov. And, as always, BECP will continue to provide the latest available codes-related Recovery Act information at www.energycodes.gov.



TRAINING Events

The Building Energy Codes Program (BECP) has a new multimedia webpage for training! Two new videos have been posted and more are on the way. Visit <http://www.energycodes.gov/training/onlinetraining/multimedia.stm> to see Vestibules – learn when they are required, how they work, and how they can reduce your energy bill, as well as Duct Testing – get duct testing tips and instruction from Bruce Manclark of Delta-T, Inc.

Over 5,100 attendees viewed the live airing of the BECP's three-part webcast series on the commercial requirements of the 2009 International Energy Conservation Code® (IECC). Other recent webcasts that may be of interest to the energy codes community in light of the American Recovery and Reinvestment Act and its provision for State Energy Program grants are (1) BECP's three-part series on ANSI/ASHRAE/IESNA Standard 90.1-2007 lighting, mechanical, and envelope requirements and (2) the overview of the residential requirements of the 2009 IECC.

All of BECP's recorded webcasts are available at www.energycodes.gov/training/onlinetraining/videos.stm. Recorded webcast viewers can earn American Institute of Architects Continuing Education System Learning Units.

Self-paced tools—REScheck™ 101 and COMcheck™ 101, both for the 2009 IECC—will be available soon as pilot studies.

CALENDAR of Events

What's going on?

Oct. 24-31 and Nov. 4-11 2009 ICC Code Development Hearings in Baltimore, Maryland. See www.iccsafe.org.

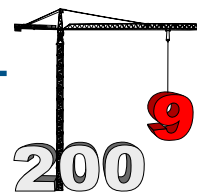
Nov. 1-4 2009 ICC Annual Conference in Baltimore, Maryland. See www.iccsafe.org.

Nov. 11-13 Greenbuild 2009 in Phoenix, AZ. See www.greenbuildexpo.org.

Dec. 8-10 EcoBuild America in Washington D.C. See www.aecocobuild.com.

Add your event to the BECP calendar!

The Building Energy Codes Program calendar is populated by the codes community, for the codes community. Anyone can add to the calendar, which displays local, regional, and national information. View upcoming events and training opportunities or submit one of your own at www.energycodes.gov/events/index.php.



SOFTWARE Updates Released and on the Way

What's New?

REScheck™ 4.3.0 for Windows with support for the 2009 IECC is now available. Staff are working to implement the 2009 IECC in REScheck™-Web also.

Coming Soon!

COMcheck™ 3.7.0 and COMcheck™-Web with support for the 2009 IECC.



U.S. Department of Energy Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Setting the Standard is published by the Building Energy Codes Program of the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy at the Pacific Northwest National Laboratory. Its purpose is to encourage information exchange among building industry professionals and organizations, state and local code officials, and researchers to facilitate timely development and early adoption of the building energy conservation standards. The Building Energy Codes Program would like to continue sending you information about energy codes and compliance tools, but if you would like your name removed from our contacts list, go to www.energycodes.gov/unsubscribe.stm. Send comments and contributions to Loel Kathmann at Pacific Northwest National Laboratory (techsupport@becp.pnl.gov).

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www.energycodes.gov
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Building Energy Codes Website:
www.energycodes.gov

Tech Support:
www.energycodes.gov/support

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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